

1 WHAT IS CLAIMED IS

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1. A liquid crystal display device, comprising:
 - a first substrate and a second substrate sandwiching a liquid crystal layer therebetween;
 - 10 a first polarizer disposed adjacent to said first substrate at a side opposite to a side of said first polarizer facing said liquid crystal layer, with a first gap between said first polarizer and said first substrate;
 - 15 a second polarizer disposed adjacent to said second substrate at a side opposite to a side of said second polarizer facing said liquid crystal layer, with a second gap between said second polarizer and said second substrate;
 - 20 at least one of said first and second gaps including therein a first retardation film having a positive optical anisotropy and a second retardation film having a negative optical anisotropy, such that said first retardation film is disposed closer to said liquid crystal layer with respect to said second retardation film.

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2. A liquid crystal display device as claimed in claim 1, wherein said liquid crystal layer is formed of a positive liquid crystal having a positive dielectric anisotropy.

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1 3. A liquid crystal display device as
claimed in claim 1, wherein said liquid crystal layer
is formed of a negative liquid crystal having a
negative dielectric anisotropy.

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10 4. A liquid crystal display device,
comprising:

15 a first substrate and a second substrate
sandwiching a liquid crystal layer therebetween;
10 a first polarizer disposed adjacent to said
first substrate at a side opposite to a side of said
first polarizer facing said liquid crystal layer, with
a first gap between said first polarizer and said
first substrate;

20 a second polarizer disposed adjacent to said
second substrate at a side opposite to a side of said
second polarizer facing said liquid crystal layer,
with a second gap between said second polarizer and
said second substrate;

25 at least one of said first and second gaps
including therein an optically biaxial retardation
film.

30 5. A liquid crystal display device as
claimed in claim 4, wherein said liquid crystal layer
is formed of a positive liquid crystal having a
positive dielectric anisotropy.

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1 6. A liquid crystal display device as
claimed in claim 4, wherein said liquid crystal layer
is formed of a negative liquid crystal having a
negative dielectric anisotropy.

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10 7. A liquid crystal display device,
comprising:

15 first and second substrates disposed
substantially parallel to each other, said first
substrate having a first principal surface at a side
thereof facing said second substrate, said second
substrate having a second principal surface at a side
thereof facing said first substrate;

20 a first electrode pattern provided on said
first principal surface of said first substrate;

25 a second electrode pattern provided on said
second principal surface of said second substrate;

30 a first molecular orientation film disposed
on said first principal surface of said first
substrate so as to cover said first electrode pattern;

35 a second molecular orientation film disposed
on said second principal surface of said second
substrate so as to cover said second electrode
pattern;

40 a liquid crystal layer confined between said
first and second molecular orientation films;

45 said liquid crystal layer containing liquid
molecules such that a major axis of said liquid
crystal molecule aligns generally perpendicularly to
at least one of said first and second principal
surfaces;

50 said liquid crystal layer having a
retardation of about 80 nm or more but below about 400
nm.

1 8. A liquid crystal display device as
claimed in claim 7, wherein said liquid crystal
molecules have a positive dielectric anisotropy.

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9. A liquid crystal display device as
claimed in claim 7, wherein said first and second
10 substrates form, together with said liquid crystal
layer interposed therebetween, a liquid crystal panel,
said liquid crystal display device further including a
first polarizer having a first optical absorption axis
and a second polarizer having a second optical
15 absorption axis respectively at a first side and a
second opposite side of said liquid crystal panel, in
a state that said first optical absorption axis and
said second optical absorption axis form an angle of
about 90° with each other and such that said first
20 optical absorption axis forms an angle of about 45 °
with respect to a central axis bisecting a twist angle
of said liquid crystal molecules in said liquid
crystal layer.

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10. A liquid crystal display device as
claimed in claim 9, wherein said liquid crystal
30 display device further includes, at least in one of a
first gap formed between said first substrate and said
first polarizer and a second gap formed between said
second substrate and said second polarizer, a first
retardation film having a positive optical anisotropy
35 and a second retardation film having a negative
optical anisotropy, such that said second retardation
film is located at a far side of said liquid crystal

1 panel with respect to said first retardation film.

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11. A liquid crystal display device as
claimed in claim 10, wherein said first retardation
film is disposed such that an optical axis thereof
extends in a direction parallel to said optical
10 absorption axis of one of said first and second
polarizers that is located adjacent to said first
retardation film.

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12. A liquid crystal display device as
claimed in claim 10, wherein said first retardation
film is disposed such that an optical axis thereof
20 extends perpendicularly to said optical absorption
axis of one of said first and second polarizers that
is located adjacent to said first retardation film.

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13. A liquid crystal display device as
claimed in claim 10, wherein said first retardation
film has a retardation of smaller than about 120 nm.

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14. A liquid crystal display device as
35 claimed in claim 13, wherein said first retardation
film is formed of a resin having a norbornene
structure in a principal chain thereof.

1 15. A liquid crystal display device as
claimed in claim 10, wherein said second retardation
film is disposed such that an optical axis of said
second retardation film extends in a direction
5 substantially perpendicularly to at least one of said
first and second principal surfaces.

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16. A liquid crystal display device as
claimed in claim 10, wherein said second retardation
film has a retardation equal to or smaller than twice
said retardation of said liquid crystal layer.

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17. A liquid crystal display device as
20 claimed in claim 9, wherein said liquid crystal
display device further includes an optically biaxial
retardation film between one of a first gap formed
between said first substrate and said first polarizer
and a second gap formed between said second substrate
25 and said second polarizer.

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18. A liquid crystal display device as
claimed in claim 17, wherein said optically biaxial
retardation film has a retardation axis within a plane
parallel to said first and second principal surfaces,
and wherein said retardation axis extends parallel to
35 said absorption axis of one of said first and second
polarizers that is located adjacent to said optically
biaxial retardation film.

1 19. A liquid crystal display device as
claimed in claim 17, wherein said optically biaxial
retardation film has a retardation axis within a plane
parallel to said first and second principal surfaces,
5 and wherein said retardation axis extends
perpendicularly to said optical absorption axis of one
of said first and second polarizers that is located
adjacent to said optically biaxial retardation film.

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20 20. A liquid crystal display device as
claimed in claim 17, wherein said optically biaxial
15 retardation film has an in-plane retardation of
smaller than about 120 nm.

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21. A liquid crystal display device as
claimed in claim 17, wherein said optically biaxial
retardation film has a retardation smaller than about
twice said retardation of said liquid crystal layer in
25 a direction perpendicular to said first and second
principal surfaces.

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22. A liquid crystal display device as
claimed in claim 9, wherein said liquid crystal
display device further includes first and second
optically uniaxial retardation films respectively in a
35 first gap formed between said first substrate and said
first polarizer and in a second gap formed between
said second substrate and said second polarizer.

1 23. A liquid crystal display device as
claimed in claim 22, wherein said first and second
optically uniaxial retardation films are disposed such
that each of said uniaxial retardation films has a
5 retardation axis such that said retardation axis
extends parallel to said optical absorption axis of
one of said first and second polarizers adjacent to
said optically uniaxial retardation film.

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15 24. A liquid crystal display device as
claimed in claim 22, wherein said first and second
optically uniaxial retardation films are disposed such
that each of said uniaxial retardation films has a
retardation axis such that said retardation axis
extends perpendicularly to said optical absorption
axis of one of said first and second polarizers
20 adjacent to said optically uniaxial retardation film.

25 25. A liquid crystal display device as
claimed in claim 22, wherein each of said first and
second optically uniaxial retardation films has an in-
plane retardation of smaller than about 300 nm.

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35 26. A liquid crystal display device as
claimed in claim 25, wherein each of said first and
second optically uniaxial retardation films is formed
of a resin having a norbornene structure in a
principal chain thereof.

1 27. A liquid crystal display device as
claimed in claim 7, wherein said first and second
substrates form, together with said liquid crystal
layer interposed therebetween, a liquid crystal panel,
5 said liquid crystal display device further includes a
first polarizer having a first optical absorption axis
and a second polarizer having a second optical
absorption axis respectively at a first side and a
second opposite side of said liquid crystal panel, in
10 a state that said first optical absorption axis and
said second optical absorption axis form an angle of
about 90° with each other, said liquid crystal display
device further includes first and second retardation
films respectively having a first retardation axis and
15 a second retardation axis between said liquid crystal
panel and said second polarizer, such that said first
retardation film is located closer to said liquid
crystal panel with respect to said second liquid
crystal panel and such that said first retardation
20 axis extends in a direction perpendicularly to a
direction of said second optical absorption axis of
said second polarizer.

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